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Monday July 21, 1997

Part II

Nuclear Regulatory Commission

10 CFR Part 20, et al. Radiological Criteria for License Termination; Final Rule Radiological Criteria for License Termination: Uranium Recovery Facilities; Proposed Rule

B-7

II. Background

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On August 22, 1994 (59 FR 43200), the NRC published a proposed rule for comment in the Federal Register to amend 10 CFR part 20 of its regulations "Standards for Protection Against Radiation" to include radiological criteria for license termination. The public comment period closed on January 20, 1995. Comments received on the proposed rule were summarized in NUREG/CR-6353. A workshop was held on December 6-8, 1994, to solicit additional comments related to sitespecific advisory boards as described in the proposed rule. Comments received during that workshop were summarized in NUREG/CR 6307¹. A workshop was also held on September 29, 1995, to specifically discuss methods for implementing the rule. Additionally, communication with the public on the proposed rule was maintained through the Electronic Bulletin Board system.

III. Overview of Public Comments

Over 100 organizations and individuals submitted comments on the proposed rule. The commenters represented a variety of interests. Comments were received from Federal and State agencies, electric utility licensees, material and fuel cycle licensees, citizen and environmental groups, industry groups, native American organizations, and individuals. The commenters offered from 1 to over 50 specific comments and represented a diversity of views. The commenters addressed a wide range of issues concerning all parts of the rule. The reaction to the rule in general and to specific provisions of the rule was varied. Viewpoints were expressed both in support of and in disagreement with nearly every provision of the rule.

IV. Summary of Public Comments, Responses to Comments, and Cianges From Proposed Rule

The following sections describe the principal public comments received on the proposed rule (organized according to the major subject areas and sections of the proposed rule), present NRC responses to those comments, and explain principal changes to the proposed rule (where they occur) in response to those comments. The comments are organized according to the following major subject areas and sections of the proposed rule and are presented in the following subsections:

(a) Overall license termination approach (unrestricted use, restricted use, exemptions, and alternate criteria), and specific issues on criteria for unrestricted use (including total effective dose equivalent (TEDE), as low as is reasonably achievable (ALARA), objective of decommissioning, average member of critical group);

(b) Specific issues on criteria for restricted use (bases for using restricted use, reliance on institutional controls, 1 mSv (100 mrem) TEDE cap, engineered barriers, financial assurance);

(c) Specific issues on exemptions and alternate criteria for license termination (facilities with large volumes of low level wastes, uranium and thorium mills, exemptions);

(d) Groundwater protection criteria (use of Environmental Protection Agency (EPA) drinking water standards of 40 CFR 141 in NRC's regulation);

(e) Public participation (means of notification, site-specific advisory boards (SSABs));

(f) Other procedural and technical issues (state compatibility, grandfathering, finality, minimization of contamination, readily removable residual radioactivity, radon, calculation of TEDE over 1000 years to demonstrate compliance with dose standard); and

 (g) Other comments (definitions, regulatory guidance; timeliness rule; wastes; recycle; rulemaking process).

The comments received from both public comment and the workshops have been factored into the Commission's decisionmaking on the final rule and into the technical basis for guidance documents implementing the final rule. The description of changes to the final rule made as a result of the comments in each of the major subject areas follows each comment/response section.

A. Overall License Termination Approach and Criteria for Unrestricted Use (Proposed Rule §§20.1402 and 20.1404)

A.1 Proposed Rule Content

The proposed rule (§20.1402(d)) presented an overall approach for license termination involving either of two basic methods, i.e., unrestricted use or restricted use of sites after license termination. The proposed rule indicated that unrestricted use was generally preferred, but that restricted use was also permitted because it was recognized that there may be cases where achieving unrestricted use would not be reasonable. Specific requirements for use of each of these two basic methods were presented in the proposed rule. The preamble to the proposed rule also indicated that there may be certain licensees that would seek exemptions from the decommissioning criteria of the proposed rule, although it did not codify this exemption path.

Section IV.A.2 reviews in detail the development of unrestricted use criteria; and, in doing so it also indicates, in general, how the overall approach for license termination has been reexamined to consider public comments. Specific issues and requirements regarding other areas, specifically restricted use, exemptions, and alternate criteria, are discussed in more detail in Sections IV.B and IV.C of this preamble.

Section 20.1402(a) of the proposed rule indicated that the objective of decommissioning is to reduce residual radioactivity in structures, soils, groundwater, and other media at the site so that the concentration of each radionuclide that could contribute to residual radioactivity is indistinguishable from the background radiation concentration for that nuclide. Section 20.1402(a) further noted that, as a practical matter, it would be extremely difficult to demonstrate that such an objective had been met and that a site release limit for unrestricted use was being proposed.

Section 20.1404 of the proposed rule indicated that a site would be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in TEDE to an average member of the critical group of 0.15 mSv/y (15 mrem/y) and has been reduced to levels that are ALARA.

Section 20.1402(d) of the proposed rule indicated that release for unrestricted use of a facility is the preferred approach but that the alternative of release for restricted use would also be allowed if its use were justified (see Section IV.B).

A.2 Criteria for Unrestricted Use, Including TEDE, ALARA, and Decommissioning Objective

A.2.1 Comments. Some commenters (including EPA) agreed that 0.15 mSv/ y (15 mrem/y) is an acceptable criterion because it is attainable, provides a margin of safety, and isn't unjustifiably costly. The Department of Energy (DOE) agreed that 0.15 mSv/y (15 mrem/y) could be acceptable if reasonable scenarios were considered although it preferred 0.25 mSv or 0.3 mSv/y (25 or 30 mrem/y) with ALARA. However, most commenters did not agree with the

¹ Copies of NUREGS may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20013–7082. Copies are also available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161 A copy is also available for Inspection and/or copying at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

the EPA in developing its decommissioning regulations to assure that there are no conflicting or duplicate requirements and that the acceptable risk levels and associated requirements developed by the two agencies are compatible or the same. DOE noted that a nonuniform approach could significantly impact the DOE environmental restoration program and that NRC/EPA regulations will have an impact beyond NRC licensees. There was some commenter disagreement as to whether EPA or NRC should take the lead in issuance of exposure standards. In its comments on the NRC's proposed rulemaking, the EPA supported the 0.15 mSv/y (15 mrem/y) limit.

In response, the NRC has considered recent information and recommendations in ICRP Publication 60 and NCRP No. 116. These documents are developed by recognized experts in the fields of radiation protection and health effects and contain reviews of current significant research in radiation health effects. The NCRP is a nonprofit corporation chartered by the U.S. Congress to develop and disseminate information and recommendations about protection against radiation and to cooperate with the ICRP and other national and international organizations with regard to these recommendations. The ICRP has continued to update and revise its estimates of health effects of radiation since its inception in 1928. In its deliberations. ICRP maintains relationships with United Nations health and labor organizations

In addition, the NRC evaluated the proposed Federal Radiation Protection Guidance for Exposure of the General Public (FRG) as published for comment on December 23, 1994 (59 FR 66414), in which the EPA, under its charter, made recommendations to the President of the United States concerning recommended practices for protection of the public and workers from exposure to radiation.

Recent recommendations contained in ICRP 60, NCRP No. 116, and the proposed FRG are essentially similar. Use of these sources for formulating basic radiation protection standards is consistent with NRC's general approach regarding risk decisions as is noted in the preamble to issuance of 10 CFR part 20 on May 21, 1991 (56 FR 23360). The NRC considers it reasonable and appropriate to use the findings of these bodies in developing criteria for license termination to apply to its licensees. The ICRP and NCRP and EPA have

The ICRP and NCRP and EPA nave reviewed current, significant studies made by other health research bodies, such as the National Academy of Sciences-National Research Council's Committee on the Biological Effects of Ionizing Radiation (BEIR) and the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), and have developed recommendations regarding limitations on exposure to radiation. In particular, the BEIR Committee conducted major reviews of the scientific data on health risks of low levels of ionizing radiation in 1972, 1980, 1988, and 1990, and similar reviews were published by UNSCEAR in 1977, 1982, 1986, and 1988. As noted in the proposed FRG. these studies have provided more certainty about radiation risks at high doses and dose rates. Using that information and assumptions of linearity with low dose/dose rate reduction factors, BEIR V contains updated risk factors.

Concerning recent information from the Chernobyl accident noted by a commenter, there are still ongoing studies of the effects of the accident. A report published by the principal international organization studying health effects from the accident, the Organization for Economic Co-operation and Development (OECD), entitled "Chernobyl: Ten Years On; Radiological and Health Impact." summarized the findings regarding health impacts by noting that scientific and medical observation of the population has not revealed any increase in cancers or other radiation induced disease that could be attributable to the Chernobyl accident. The only area where an increase was noted was for thyroid cancer. However, these effects most likely resulted from the release of shortlived radioiodine from the accident and the affinity of the thyroid gland for iodine. Similar effects would not be applicable in decommissioning because radioactive iodine is not expected to be a significant contaminant. The report further notes that, while studies continue on long term effects, it is unlikely that the exposure to contaminants in the environment will lead to discernible radiation effects in the general population. Thus, this research does not appear to indicate that the findings of the ICRP and NCRP will be shown to underestimate risks.

Specifically with regard to the risk level, some of the commenters stated that the risk of fatal cancers from 0.15 mSv/y (15 mrem/y) is too high in comparison with risk goals in the range 1×10⁻⁴ to 1×10⁻⁶ used by EPA in Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) regulations. Other commenters disagreed and stated that precedents from earlier NRC rulemakings support a level of risk significantly greater than that and more appropriately in a range of 1×10-2 to 1×10-3 (e.g., the level of lifetime risk corresponding to the 1 mSv/y (100 mrem/y) public dose limit of 10 CFR Part 20, that is NRC's basic standard for public safety, is about 1.5×10^{-3}). Several of these commenters also criticized 0.15 mSv/y (15 mrem/y) as too low because the linear nonthreshold model overestimates the risk and should not be used in the analysis. In response to comments on the risk level, constant exposure over a 30-year time period to dose levels of about 0.15-0.25 mSv/y (15-25 mrem/y), results in an estimated lifetime risk of fatal cancer of about 2.3×10-4 to 3.8×10-4 which is at the upper end of the acceptable risk range suggested by EPA in their comments on NRC's proposed rule but lower than that in NRC's public dose limits.² These estimates are based on use of the linear non-threshold model for calculating risk estimates. In response to specific comments on use of the linear non-threshold model in estimating risk, use of the linear nonthreshold model for estimating incremental health effects per radiation dose incurred is considered a reasonable assumption for regulatory purposes by international and national scientific bodies such as ICRP and NCRP. The principal international and national radiological protection criteria. including the NRC's, are based on this assumption as a measure of conservatism. NRC's policy regarding use of the linear non-threshold model was stated in the preamble to the issuance of 10 CFR part 20 (56 FR 23360; May 21, 1991) noting that the assumptions regarding a linear nonthreshold dose effect model are appropriate for formulating radiation protection standards. Although this matter continues to be the subject of further consideration at this time, there is not sufficient evidence to convince the NRC to alter its policy as part of this rulemaking.

To provide some perspective on the conservatism of considering dose criteria in the range of 0.15–0.25 mSv/

²The risks are estimated assuming a risk coefficient of 5×10-4 per rem and a 30-year lifetime exposure that is used by EPA in estimating risk from contaminated sites based on the assumption that it is unlikely that an individual will continue to live or work in the same area for more than 30 years. Such an estimate is seen as providing a conservative estimate of potential risk because land use patterns are generally such that persons living at or near a site will not continuously receive the limiting dose, and, for most of the facilities covered by this rule, the TEDE is controlled by relatively short-lived nuclides of half-lives of 30 years or less for which the effect of radioactive decay will, over time, reduce the risk significantly (e.g., at reactors where much of the contamination is from Co-60 with a half-life of 5.3 years).

is not normally exposed to the constraint level from more than one source although it may be exposed to some dose level less than the constraint level from more than one source.

(c) The proposed FRG in recommendation No. 4 indicates that individual sources should have "authorized limits" set at a fraction of the 1 mSv/y (100 mrem/y) limit for all sources combined. The draft FRG notes that the basis for this recommendation is the various categories of activities using radiation that can lead to exposure to members of the public, and also notes the need for broad assumptions about future activities involving radiation use.

The draft FRG does not recommend a level for any one source although it does note that setting such a fraction will necessarily be a broad judgment based on a general observation of the characteristics of existing activities, projections for continuing those activities in the future, and the potential for other uses in the future that can be identified now. Thus, the draft FRG notes that, in the case of authorized limits for broad categories of sources. the judgments will often necessarily be broad and may lead to somewhat higher values, with further implementation of the ALARA process left to management of individual sources within a category. The draft FRG does not indicate how this judgment is to be made although it cites authorized standards for certain sources that currently exist, including 40 CFR part 190 for the nuclear fuel cycle, Appendix I to 10 CFR part 50 for power reactors, 10 CFR part 61, and 40 CFR part 141. All of these set authorized fractions at 25 percent or less of the 1 mSv/y (100 mrem/y) public dose limit. NRC, in its comments on EPA's draft FRG, questioned what was the appropriate fraction of the public dose limit in 10 CFR part 20 that should be used in setting constraints that would become "authorized" limits.

(d) In its review of how the principles and recommendations of the ICRP. NCRP, and FRG are relevant to the proposed NRC rule, NRC's Advisory Committee on Nuclear Waste (ACNW) noted that 0.15 mSv/y (15 mrem/y) represented an unnecessarily conservative fraction of the 1 mSv/y (100 mrem/y) annual limit. The ACNW agreed that the need to partition the annual recommended dose limit among several sources to which a person is likely to be exposed appears justifiable and noted that no explicit guidance from the various national and international bodies on this subject exists. ACNW stated that a constraint of 25 percent or 30 percent of the 1 mSv/

y (100 mrem/y) limit appears more justified and appropriate based on the likelihood that no more than 3 or 4 separate regulated sources will affect the critical group at any instance. ACNW further noted that the selection of 0 15 mSv/y (15 mrem/y), that represents about ¹/₇ of the annual limit, assumes that a person will encounter a simultaneous dose from seven different regulated sources and that this appears to them to be unjustified, particularly because the ALARA principle accompanies all such NRC regulatory actions.

The recommendations of the previously cited organizations can be summarized as suggesting that a constraint value should be set as part of the process of optimizing the dose from a particular source and that this constraint value should be set as a boundary value below which further optimization or ALARA principles should be employed. The recommendations also appear to suggest that setting a source constraint of 25–33 percent of the annual dose limit of 1 mSv/y (100 mrem/y) is appropriate and adequate to ensure that the dose limit is met, and do not tend to lend support to 0.15 mSv/y (15 mrem/y) as the appropriate fraction to which to constrain the dose from an individual source because it is not likely that a critical group will be exposed to as many as seven sources. Thus, the recommendations appear to indicate that the constraint value should be set using a more reasonable approach.

In discussing the bases for the 0.15 mSv/y (15 mrem/y) dose criterion in the proposed rule, the Commission noted in the preamble (at 59 FR 43219; August 22, 1994) that 0.15 mSv/y (15 mrem/y) would provide a "substantial" margin of safety and be appropriate for decommissioned facilities As part of its review of + public comments, the Commission considered the recommendations of the standardssetting bodies previously cited. Further, in making a judgment on the appropriate value of the fraction, the Commission also considered principles of optimization, numbers and types of sources, potential for exposure of critical groups to more than one source at the constraint value, and assumptions regarding the manner in which a critical group would be exposed. NRC reviewed the assumptions of the Draft and Final GEIS regarding exposure pathways and also NUREG/CR-5512 upon which the Draft and Final GEIS are based. NUREG/ CR-5512 provides an analysis of exposure pathways for critical groups at decommissioned facilities. The principal limiting scenarios include: (a)

Full time residence and farming at a decommissioned site, (b) exposure while working in a decommissioned building, and (c) renovation of a newly decommissioned building. These principal limiting exposure scenarios are intended to overestimate dose and also tend to be somewhat mutually exclusive; i.e., a person living near a decommissioned nuclear facility would only receive a dose near the constraint level if his living pattern includes fulltime residency and farming at the site. This living pattern would make it difficult for the member of this critical group to also be a member of the critical group from other licensed or decommissioned sources. Conversely, a person having less residency than a full time farmer (e.g., apartment dweller, homeowner who works away from the site) might receive doses from other sources but would receive less than the constraint value from the decommissioned site because the exposure time and the number of pathways would be reduced. Thus, given the assumptions regarding living patterns made in evaluating compliance with the constraint level, it is difficult to envision an individual receiving levels approaching constraint levels from more than one licensed or decommissioned source. It is also likely that individuals at a decommissioned site will actually be exposed to doses substantially below the constraint level because of ALARA considerations and because of the nature of the cleanup process itself, i.e., the process of scabbling of concrete removes a layer of concrete which likely contains a large fraction of the remaining radioactivity. and the process of soil excavation is a gross removal process that is also likely to remove large fractions of the radioactivity. For example, the Final GEIS indicates that, for the reference cases analyzed, removal of a layer of concrete by scabbling will result in doses at levels from 2 to more than 10 times lower than a constraint value. In addition to consideration of decommissioned sources, it is also difficult to envision that an individual could come in contact with more than a few other sources as part of normal living patterns. For example, the NCRP in NCRP No. 93, "Ionizing Radiation Exposure of the Population of the United States," September 1987, reviewed likely radiation exposures to the public from consumer products, air emissions, and fuel cycle facilities (including nuclear power plants) and found that, in general, exposure to the public is a small fraction of 1 mSv/y (a few mrem/y). Recent experience on

including cost, practicality (e.g., measurability) of achieving the objective, and the type of facility involved.

As noted in Section 7.3.1 of the Draft GEIS, decommissioning is expected to be relatively easy for a certain class of non-fuel-cycle nuclear facilities (i.e., those that use either sealed radioactive sources or small amounts of short-lived nuclides), because there is usually no residual radioactive contamination to be cleaned up and disposed of, or, if there is any, it should be localized or it can be quickly reduced to low levels by radioactive decay. Decommissioning operations will generally consist of disposing of a sealed source or allowing licensed short-lived nuclides to decay in storage, submitting Form NRC-314, and demonstrating (either through radiation survey or other means such as calculation of reduction of the contamination level by radioactive decay) compliance with the requirements for license termination. Because contamination at these facilities is expected to be negligible or to decay to negligible levels in a short time, achieving an objective of returning these facilities to background would not appear to be an unreasonable objective of ALARA.

However, in general, for those nuclear facilities where contamination exists in soils and/or structures, the Final GEIS analysis shows, in a manner similar to the Draft GEIS, that achieving an ALARA decommissioning objective of "return to a preexisting background" is not reasonable as it may result in net detriment or because cost cannot be justified because detriments and costs associated with remediation and surveys tend to increase significantly at low levels, while risk reduction from radiation exposure from criteria near backgroun ' is marginal.

(b) ALAKA analysis for soil contamination. Soil contamination can exist onsite at nuclear facilities because of a variety of reasons including spills or leaks, deposition from airborne effluents, or burial or placement of system byproducts or other waste materials in onsite soils. The level of soil contamination for the large majority of NRC-licensed facilities (>6000) is either zero or minimal (it is expected that the large majority of Agreement State licensees would have similar contamination). Certain facilities (e.g., power reactors, fuel facilities, industrial facilities) may have greater soil contamination, and certain of these facilities have been identified as having extensive soil contamination (albeit generally at relatively low levels) and have been placed in the Site

Decommissioning Management Plan (SDMP) (see NUREG-1444, October 1993). These sites warrant specific NRC attention regarding their decommissioning.

For the generic scenarios considered, the results of the Final GEIS evaluation indicate that there is a wide range of possible cost-benefit ratios. Nevertheless, there appears to be a strong indication that removing and transporting soil to waste burial facilities to achieve exposure levels at the site at or below a 0.25 mSv/y (25 mrem/y) unrestricted use dose criterion is generally not cost-effective when evaluated using NRC's regulatory analysis framework presented in NUREG/BR-0058 and NUREG-1530. Further, even for a range of cleanup levels at or above a 0.25 mSv/y (25 mrem/y) criterion, there can also be cases where costs are unreasonable in comparison to benefits realized.

(c) ALARA analysis for structures containing contamination. Building floors and walls at nuclear facilities can be contaminated for a variety of reasons. including system leaks, spills, tracking, and activation. The large majority of NRC licensed facilities have zero or limited building contamination. Generally, contamination does not penetrate the surface of concrete and can be readily removed by water jets or concrete scabbling. If the building is reused for some new industrial, office, or other use after license termination. persons can be in direct contact with the decommissioned floors and walls.

For the range of generic situations considered, the results of the Final GEIS evaluation indicate that there is a wide range of possible cost-benefit ratios. It appears that cleanup of concrete to levels at or below 0.25 mSv/y (25 mrem/ y) can be cost effective, depending on the number of individuals projected to be occupying a building, when using the decisionmaking guidelines of NUREG/ CR-0058 and NUREG-1530.

A.2.3 Conclusions regarding overall approach to license termination and unrestricted dose criterion. Based on the above discussion, the Commission has concluded that the overall license termination approach of this final rule should include:

 An unrestricted use dose criterion of 0.25 mSv/y (25 mrem/y) applicable on a generic basis without site-specific analysis;

• Considerations regarding ALARA. including the decommissioning objective:

• A tiered approach of unrestricted use and allowing restricted use if certain provisions are met; and

• Codifying alternate criteria in the rule to alleviate the need for exemptions in certain difficult site-specific circumstances.

The reasons for these conclusions are discussed in the following subsections.

A.2.3.1 An unrestricted use dose criterion of 0.25 mSv/y (25 mrem/y) applicable on a generic basis without site-specific analysis. For the reasons described above, the Commission is establishing a dose of 0.25 mSv/y (25 mrem/y) as an acceptable criterion for release of any site for unrestricted use without further analysis of the potential for exposures from other man-made sources excluding medical. The Commission concludes that a generic dose constraint or limitation for decommissioning sources of 0.25 mSv/ y (25 mrem/y) for unrestricted use of a site appears reasonable from the standpoint of providing a sufficient and ample margin of safety in protection of public health and safety. This conclusion reflects the Commission's judgment that the likelihood of individuals being exposed to multiple sources with cumulative doses approaching 1 mSv/y (100 mrem/y) is quite small. This conclusion is based on consideration of the kinds of occupancy times generally expected for the average member of the critical group at typical decommissioned sites and the low probability that individuals could realistically be expected to experience significant exposures to other sources, particularly with a cumulative effect approaching 1 mSv/y (100 mrem/y). In view of these perspectives, the Commission believes that a generic dose criterion of 0.25 mSv/y (25 mrem/y) provides a sufficient and ample. although not necessary, margin to protect the public.

A.2.3.2 Considerations regarding ALARA, including the decommissioning objective. The ICRP, NCRP, and draft FRG all suggest that, in addition to setting a constraint value for an individual source, achievement of exposures that are ALARA should continue to be considered as a means of optimization. For this reason and because the generic analysis of the Final GEIS tends to indicate that achieving doses below 0.25 mSv/y (25 mrem/y) may be ALARA for some cases, the rule continues to require an ALARA evaluation below the unrestricted dose criterion.

It would be useful if the analyses in the Final GEIS could have arrived at a value of ALARA for all facilities or classes of facilities so that no further estimate of ALARA would be needed in site-specific cases. However, it was not feasible for the Commission to use the (b) Employ, to the extent practical, restrictions on site use for minimizing exposures at the site using the provisions for restricted use outlined in Section IV.B, below; and

(c) Reduce doses to ALARA levels.

(d) Seek advice from affected parties regarding this approach and, in seeking such advice, provide for: (1) Participation by representatives of a broad cross section of community interests who may be affected by the decommissioning, (2) an opportunity for a comprehensive, collective discussion on the issues, and (3) a publicly available summary of the results of all such discussions, and

(e) Obtain the specific approval of the Commission. The Commission will make its decision on allowing use of alternate criteria in specific cases only after consideration of the NRC staff's recommendations that will address any comments provided by the Environmental Protection Agency and any public comments submitted regarding the decommissioning or license termination plan.

A description of these circumstances and potential resolutions on a sitespecific basis, short of exempting a facility from this rule, appears in Section IV.C.

If license termination still cannot be met even under alternate criteria, it may be necessary for the site (or a portion thereof) to be kept under license in order to ensure that exposures to the public are appropriately monitored. The evaluation of the maintenance of a site or a portion thereof under a continued license is outside the scope of this rulemaking because this rule contains provisions addressing radiological criteria that apply to termination of a license.

A.2.4 Summary of rule revisions on unrestricted use and plans for implementation. The final rule has been modified to indicate that the dose criterion for unrestricted use is 0.25 mSv/y (25 mrem/y). Requirements that a licensee consider how the ALARA requirements of 10 CFR part 20 can be applied to achieve a dose below the dose criterion have been retained.

Regulatory guidance is planned on how to meet these existing ALARA requirements. In addition, to assist in implementing the dose criterion, regulatory guidance will also be issued to provide clear guidance to licensees on how to demonstrate compliance with the dose criterion by using either:

(a) Screening analyses that use relatively simple approaches for demonstrating compliance; or

(b) Site-specific modeling for more complex sites and contamination.

Regulatory guidance will also be issued to provide clear guidance on statistical tests and survey methods available to licensees for demonstrating compliance.

The Commission is retaining the distinguishable from background provision in the final rule to allow release of sites when residual contamination, if any, cannot be distinguished from background on a statistical basis using proper survey techniques. In particular, at the levels of the dose criterion, concentrations of uranium and thorium in soil are extremely low and may not be distinguishable from background on a statistical basis even when using proper survey techniques.

A.3 General Comments on the Dose Criterion

A.3.1 Comments. Comments were received on the 0.15 mSv/y (15 mrem/y) dose criterion that questioned its effect on disposal capacity, the relationship to naturally occurring radioactive material (NORM), and the issue of fixing the responsibility for cleanup.

A.3.2 Response. Some commenters were concerned about the effect of 0.15 mSv/y (15 mrem/y) criterion on disposal capacity. As noted in Section IV.A.2.2, several of the assumptions. models, and approaches in the GEIS and Regulatory Analysis have been revised to include additional data and alternate waste disposal costs. A complete discussion of these revisions and analysis of disposal capacity is in the Final GEIS and the Regulatory Analysis.

Some commenters questioned the relationship of this rule to NORM. In response, the criteria of this rule apply to residual radioactivity from activities under a licensee's control and not to naturally occurring background radiation. Issues related to NRC-licensed sites conta⁺⁻ ing materials that occur in nature are discussed in Sections IV.B and IV.C.

There is a wide variety of sites containing NORM subject to EPA jurisdiction and not licensed by the NRC. The extent to which criteria in this rule would apply to these sites would be based on a separate evaluation although certain aspects of the rule, for example control of sites with restrictions imposed, could be similar. For further discussion, see also Section IV.G.6.

With regard to responsibility for cleanup, several commenters stated that the 0.15 mSv/y (15 mrem/y) limit is too high because licensees should have to 'clean up contamination that they created. Because these are final licensing actions before releasing the site to the public, they stated that only

a lower criterion such as return to background would adequately protect the public. In response, the NRC agrees with the need to fix responsibility for decommissioning of licensed sites. The planning and financial assurance requirements adopted June 27, 1988 (53 FR 24018), recognized the responsibility of licensees to plan for the cleanup of their sites and to provide adequate financial assurance for that cleanup. Similarly in this regulation, licensees are not permitted to release a facility for unrestricted or restricted public use unless the dose criteria stipulated in the rule have been satisfied. As noted in the Final GEIS, further cleanup to levels such as background is not generally reasonable because it results in very little additional health benefit with very large costs incurred and could result in an increase in the overall risk associated with cleanup of a particular site when all factors (e.g., estimated fatalities due to transportation accidents during transport of radioactive wastes) are considered. Therefore, for the reasons discussed in Section IV.A.2.2, the criteria in the final rule are considered appropriate to protect public health and safety and to permit release of the sites and termination of license.

A.4 Average Member of the Critical Group

A.4.1 Comment. Some commenters agreed with provisions of the rule that would apply the dose limit to an average member of the critical group rather than to the "reasonably maximally exposed (RME) individual" because it is consistent with ICRP and provides an appropriate protection standard. Other commenters objected to use of "an average member of the critical group." These commenters favored applying the dose limit to the most exposed person rather than to an average person. They asserted that this would be consistent with the approach used for other licensed activities and environmental protection.

A.4.2 Response. Section 20.1003 of the proposed rule defined the term "critical group" as the group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances. For example, if a site were released for unrestricted use, the critical group would be the group of individuals reasonably expected to be the most highly exposed considering all reasonable potential future uses of the site. As noted in the preamble to the proposed rule (at 59 FR 43218; August 22, 1994), NUREG/CR- 5512 defines the critical group as an individual or relatively homogeneously exposed

licensees. Other commenters questioned whether the financial assurance provisions were adequate. One commenter stated that there should be more detail on financial assurance provided in the rule. in Section IV.B.3.1, the proposed rule allowed restricted use because release a site under restricted conditions can an appropriate method of decommissioning from both health an safety, and cost-benefit bases, especial

B.3 Response

B.3.1 The general concept of restricted use. Current NRC regulations pertaining to decommissioning, issued on June 27, 1988 (53 FR 24018), do not contain provisions for release of a facility for restricted use but limit a licensee's options in decommissioning to release of a facility for unrestricted use. Experience with decommissioning of facilities since 1988 has indicated that for certain facilities, achieving unrestricted use might not be appropriate because there may be net public or environmental harm in achieving unrestricted use, or because expected future use of the site would likely preclude unrestricted use, or because the cost of site cleanup and waste disposal to achieve unrestricted use is excessive compared to achieving the same dose criterion by restricting use of the site and eliminating exposure pathways. The input received from the rulemaking workshops held from January through May 1993 confirmed this experience and indicated that restricted use of a facility, if properly designed and if proper controls were in place, was a reasonable means for terminating licenses at certain facilities.

Current NRC-licensed sites that might request restricted use are largely industrial sites. It is reasonable for them to remain industrial because of their locations and previous siting considerations. Nevertheless, there may be instances where, if a site had high cultural value, such considerations would be presented as part of the public input that is part of the process of restricted use (see Section IV.E) and could be considered as a socioeconomic effect under the ALARA process.

The proposed rule thus provided for both unrestricted and restricted use of sites. Both the Draft and Final GEIS provide discussions of the environmental impact of decommissioning for the reference sites and of the costs related to decommissioning. From this it may be concluded that release of certain facilities for restricted use is an appropriate option assuming the presence of the specific provisions described below to ensure that appropriate controls are in place so that the restrictions on use remain in effect.

B.3.2 The need for licensees to demonstrate that restricted use is appropriate for their sites. As described

allowed restricted use because release of a site under restricted conditions can be an appropriate method of decommissioning from both health and safety, and cost-benefit bases, especially for certain facilities with soil contamination. Nevertheless it did so under the philosophy (stated in § 20.1402(d)) that, in general, termination of a license for unrestricted use is preferable because it requires no additional precautions or limitations on use of the site after licensing control ceases, in particular for those sites with long-lived nuclides. In addition, there may be societal or economic benefits related to future value of the unrestricted use of the land to the community. Thus, §20.1405(a) of the proposed rule stated the provisions the NRC would consider in evaluating a request for termination of a site under restricted conditions, including that it is "prohibitively expensive" or there is "net public or environmental harm" in achieving unrestricted release.

The Commission continues to believe that unrestricted use is generally preferable for the reasons noted. However, the NRC has reexamined the provisions for allowing restricted use because of the potential benefits. In explaining the provision of 'prohibitive" cost, the proposed rule noted (at 59 FR 43220) that costs to achieve unrestricted use may be "excessive," indicating that this means there may be situations where removal and disposal of large quantities of material is simply "not reasonable" from a cost standpoint. Consistent with this, the proposed rule noted in § 20.1402(d) that the Commission expected licensees to make every reasonable effort to achieve unrestricted release. The specific cost that would be considered excessive, not reasonable, or prohibitive was not included in the proposed rule. This value depends on costs of unrestricted and restricted use, and on an evaluation of these alternatives using the regulatory analysis framework presented in NUREG/BR-0058 and NUREG-1530 NUREG/BR-0058 provides a decisionmaking tool for deciding between regulatory alternatives. As noted in the discussion below, restricted use with appropriate institutional controls (accompanied by sufficient provisions for ensuring their effectiveness) can provide protection of public health and safety because the dose level will be reduced to the same 0.25 mSv/y (25 mrem/y) criterion as for unrestricted use. Thus, use of the guidelines in NUREG/BR-0058 is

appropriate for determining whether restricted use should be permitted. Therefore, the Commission has modified the rule to incorporate an ALARA standard rather than prohibitive costs as the basis for selecting restricted use. To support a request for restricted use, a licensee would perform an ALARA analysis of the risks and benefits of all viable alternatives and include consideration of any detriments. This could include estimated fatalities from transportation accidents that might occur as the result of transport of wastes from cleanup activities, and societal and socioeconomic considerations such as the potential value to the community of unrestricted use of the land.

The proposed rule also noted that because the net public or environmental damage through removal, transport, and disposal of materials could be larger than the benefit in dose reduction at the site, it may be more reasonable for the material to remain onsite. The Final GEIS illustrates when it may be inappropriate, when considering such relative impacts, to completely remediate a site to an unrestricted level that assumes activities such as farming or residence, and then, as would be the case for a number of currently licensed sites, actually employ a commercial or industrial use that would eliminate significant pathways of exposure. Specific examples include reactors or other materials facilities where the dose is controlled by relatively short-lived nuclides (e.g., Co-60 and Cs-137 with half-lives of 5.3 and 30 years. respectively) that will decay to unrestricted dose levels in a finite time period of institutional control (e.g., about 10-60 years). For these facilities, there may be net public or environmental harm from removing and transporting soil to achieve unrestricted use compared to restricting use for a period of time associated with a reasonable decay period (see the Final GEIS, Chapter 6). Thus, the consideration of potential detriments from cleanup activities and the possibility of net harm have been retained in the final rule. Both terms, net public harm and net environmental harm, are retained in the final rule to indicate that a licensee's evaluation should consider the radiological and nonradiological impacts of decommissioning on persons who may be impacted, as well as the potential impact on ecological systems from decommissioning activities.

B.3.3 The durability of institutional controls. As described in Sections IV.B.3.1 and IV.B.3.2, use of restrictions that employ institutional controls appears appropriate in specific while providing a more cost-effective use of resources.

Although the Commission did not fractionate the cap, it did include in the proposed rule, and continues to include in the final rule, a provision that would require exposures to be below the cap to a degree that is ALARA. The purpose of this requirement is that licensees would not simply leave behind contamination corresponding to the value of the cap but would evaluate the level below the cap that is cost effective and reduce the contamination to that level. This will provide a requirement that will effectively fractionate the doses and result in doses not dissimilar from those suggested by the commenters if it is cost-effective to do so. This approach is consistent with the current requirements in 10 CFR part 20.

Based on its experience with sites with difficult contamination issues, in particular those sites treated in NRC's SDMP, and as described in the Final GEIS, the Commission anticipates that there may be sites where compliance with the 1 mSv/y (100 mrem/y) cap could cause impacts resulting from cleanup to that level (e.g., estimated industrial or traffic fatalities associated with removing or transporting waste) that exceed the benefits of averting radiation exposure (thus causing a net detriment to public health or the environment) or that diminish the net benefit to where costs of cleanup would be prohibitive compared to the net benefit. Although the NRC recognizes that it is always the licensee's responsibility to clean up the contamination that it has caused, the appropriate course of action should not result in net public or environmental harm from a cleanup, and it is not clear that it is beneficial if resources are spent in a manner prohibitive in relation to other benefits which could be a hieved. or if a licensee is put into a financial position where it cannot continue to perform the cleanup safely.

Although a cap higher than 1 mSv/y (100 mrem/y) would result in using a value in excess of the public dose limit in §20.1301(a), existing requirements in § 20.1301(c) permit levels up to values of 5 mSv/y (500 mrem/y), provided that a licensee would apply to the Commission for permission to operate at that site access is controlled. Under that level, submit reasons why it is necessary, and indicate procedures to maintain doses ALARA. The proposed FRG. Recommendation No. 4, states that the dose from all sources should not exceed 1 mSv/y (100 mrem/y) although it may be exceeded temporarily in unusual situations that are not expected to recur.

Based on this existing requirement, the Commission has incorporated a specific provision in the final rule under which a licensee could propose exceeding the 1 mSv/y (100 mrem/y) cap in unusual site-specific circumstances if, in addition to the normal provisions of restricted use, it also met the following additional stringent provisions:

(a) A licensee would have to demonstrate that it cannot meet the I mSv/y (100 mrem/y) cap because of net public or environmental harm or prohibitive costs by means of a sitespecific evaluation of the issues associated with complying with the 1 mSv/y (100 mrem/y) cap. The NRC expects that only a very few facilities (e.g., sites with soil contaminated with naturally occurring radionuclides in small radioactivity levels but large volumes, certain SDMP sites) could provide sufficient rationale for seeking a higher cap. Although the proposed rule contained a reference to the use of prohibitive cost, it did not quantify or define these costs beyond noting that they would be excessive or unreasonable. The Commission believes it appropriate to consider a prohibitive cost to be one that would be an order of magnitude greater than that contained as part of the decisionmaking guidelines in NUREG/BR-0058, although a lower factor may be appropriate in specific situations when a licensee could become financially incapable of carrying out decommissioning safely;

(b) Under these circumstances, the licensee would be required to reduce contamination so doses would be no greater than the 5 mSv/y (500 mrem/y) value currently contained in § 20.1301(a). Also, the actual dose level to which the licensee would have to clean the site would be less than that value based on an ALARA evaluation of the site. T ; provision is consistent with existing requirements in § 20.1301(c) that permit levels up to values of 5 mSv/y (500 mrem/y) for specific cases;

(c) Durable institutional controls must be in place. These controls could include significant engineered barriers and/or State, local, or Federal Government control of sites or maintenance of site deed restrictions so Section 151(b) of the NWPA of 1982, the DOE has already been authorized to take possession of waste disposal sites in certain situations. A similar provision in Section 151(c) was used as the vehicle to transfer custody of the Amax site from Amax to DOE;

(d) A licensee would make provisions for a verification of the continued

effectiveness of institutional controls at the site every 5 years after license termination to ensure that the institutional controls are in place and the restrictions are working, and that there is financial assurance to reestablish controls if the recheck indicates otherwise. This 5-year recheck is consistent with 10 CFR Part 20 and also with the FRG, Recommendation No. 4. that states that in some unusual situations the 1 mSv/y (100 mrem/y) may be exceeded temporarily in situations that are not anticipated to recur. It is also consistent with the approach for institutional controls used in CERCLA that allows for release of sites without a cap providing there is continuous checking on the status of the controls

The NRC would retain the authority to take appropriate action in those unusual situations when both the 5 mSv/y (500 mrem/y) cap was in effect and the controls had failed. This action might include oversight of actions needed to reinstate the controls and any necessary cleanup and/or monitoring actions.

B.3.5 Financial assurance. As a second provision for ensuring that the institutional controls provide protection of public health and safety, financial assurance requirements were included to ensure that funds will be available to enable an independent third party, including a governmental custodian of a site, to implement and ensure continued effectiveness of institutional controls. Some commenters questioned whether these provisions were necessary while others questioned whether they went far enough. In response, the Commission continues to believe the proposed provisions are reasonable and adequate for their purpose. The provisions are consistent with financial assurance requirements currently in 10 CFR Parts 30, 40, 50, 61, 70, and 72 which call for financial assurance to provide funds for decommissioning in cases when licensees might otherwise be financially unable to remediate a site. Reference to an independent third party is necessary in the regulations because after the license is terminated, the licensee may no longer be the party ensuring the effectiveness of the controls. Because the purpose of this provision is to provide broad requirements for financial assurance necessary to ensure that the controls continue to limit the dose, more specific details are not included in the rule. The level of detail in the rule is similar to that in other similar NRC regulations on financial assurance. As requested by a commenter, the funding provisions include a trust fund (or similar funding mechanism) for

outlined in IV.B, above, and in § 20.1403;

(c) A licensee will indicate that a comprehensive analysis had been performed of the risks and benefits of all viable alternatives and consideration of any detriments, such as transportation fatalities that might occur as the result of cleanup activities, to reduce the residual radioactivity at the site to levels that are ALARA;

(d) A licensee will seek advice from affected parties regarding this approach. In seeking such advice, the licensee will provide for: (1) Participation by representatives of a broad cross section of community interests who may be affected by the decommissioning; (2) an opportunity for a comprehensive. collective discussion on the issues by the participants represented; and (3) a publicly available summary of the results of all such discussions. including a description of the individual viewpoints of the participants on the issues and the extent of agreement and disagreement among the participants on the issues (the rationale for these public participation aspects are discussed in more detail in Section IV.E); and

(e) A licensee will obtain the specific approval of the Commission for the use of alternate criteria. The Commission will make its decision after consideration of the NRC staff's recommendations that will address any comments provided by the Environmental Protection Agency and any public comments submitted regarding the decommissioning or license termination plan.

If the license termination conditions under alternate criteria cannot be met, it may be necessary for the site (or portion thereof) to be kept under license to ensure that exposures to the public are appropria 'ly monitored. The evaluation of maintenance of a site or a portion of that site under continued license is outside the scope of this rulemaking because this rule contains provisions, including radiological criteria, that apply to termination of a license.

With regard to the comment on the NWPA, it should be noted that Section 151(b) of the NWPA already authorizes ownership by the U.S. Department of Energy, if NRC makes certain determinations. Therefore, no further legislation is needed to grant this authority. The rule language has been clarified to ensure that this authority may be implemented by NRC and DOE.

C.1.4 Summary of revisions to rule on codifying provisions for certain facilities. The rule has been modified to include the use of alternate criteria in specialized circumstances and under the provisions described above.

C.2 Exclusion of Uranium/Thorium Mills Proposed in §20.1401(a)

C.2.1 Proposed rule content. The proposed rule stated that, for uranium mills, the criteria of the rule apply to the facility but do not apply to the disposal of uranium mill tailings or to soil cleanup. The proposed rule referred to 10 CFR Part 40, Appendix A, where criteria already exist (§20.1401(a)).

C.2.2 Comments. Comments on the proposed rule generally agreed with the exclusion for disposal of mill tailings and soil cleanup. Commenters also recommended that the rule exempt conventional thorium and uranium mill facilities and in situ leach (ISL) (specifically uranium solution extraction) facilities from the scope of coverage because they stated that the decommissioning of these sites is covered by Appendix A to 10 CFR part 40 and 40 CFR part 192.

C.2.3 Response. Currently, there are regulations applicable to remediation of both inactive tailings sites, including vicinity properties, and active uranium and thorium mills. Under the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978, as amended, EPA has the authority to set cleanup standards for uranium mills and, based on that authority, issued regulations in 40 CFR part 192 which contain remediation criteria for these facilities. NRC's regulations in 10 CFR part 40. Appendix A, apply to the decommissioning of its licensed facilities and conform to EPA's standards for uranium mills. At ISLs, the decommissioning activities are similar to those at uranium mills and consist mainly of the cleanup of byproduct material as defined in Section 11e.(2) of the Atomic Energy Act of 1954, as amended.

Thus, applicable cleanup standards already exist for soil cleanup of radium in 10 CFR part 40, Appendix A, Criterion 6(6). Radium is the main contaminant at mills in the large areas (20-400 hectares (50 to 1000 acres) for uranium mills) where windblown contamination from the tailings pile has occurred, and at ISLs (in holding ponds). These standards require that the concentration of radium in those large areas not exceed the background level by more than 0.19 Bq/gm (5 pCi/gm) in the first 15 cm (6 inches) of soil, and 0.56 Bq/gm (15 pCi/gm) for every 15 cm (6 inches) below the first 15 cm (6 inches). Cleanup of radium to these concentrations would generally result in doses higher than the unrestricted use dose criterion of this rulemaking.

although, in actual practice, cleanup of uranium mill tailings results in radium levels lower than the 10 CFR part 40 standards, and radium is usually removed to background levels during cleanup of uranium and thorium to the levels in existing NRC guidance documents.

However, in other mill and ISL site areas proximate to locations where radium contamination exists (e.g., under the mill building, in a yellow cake storage area, under/around an ore pad. and at ISLs in soils where spray irrigation has occurred as a means of disposal), uranium or thorium would be the radionuclide of concern. A difficulty in applying 10 CFR part 40. Appendix A, as a standard for uranium and thorium, is that it does not have any cleanup standards for soil contamination from radionuclides other than radium. Application of the decommissioning dose criterion of the final rule to these areas (while retaining the 10 CFR 40, Appendix A, standard for radium) would result in a situation where the cleanup standard of that small portion of the mill site would be lower than the standard for the large windblown tailings areas where radium is the nuclide of concern. This would result in situations of differing criteria being applied across essentially the same areas and would be a problem for contamination existing both in uranium mill soils and buildings.

The Commission has considered the most appropriate means to address requirements for cleanup at uranium and thorium mills and ISLs (collectively referred to as UR facilities) for unrestricted release of the site other than tailings disposal and reclamation subject to the requirements of 10 CFR part 40, Appendix A. One way would be to include criteria for UR facilities as part of this rulemaking. However, as noted above, there are complexities associated with decommissioning of these unique facilities which could cause practical problems in applying the standards of this rulemaking to UR facilities. Therefore, the Commission has decided to exclude UR facilities from the scope of this rulemaking.

To allow for full consideration by the Commission and affected parties of the issues associated with decommissioning UR facilities and of the regulatory options listed above, the Commission is publishing a separate notice in this Federal Register reopening the comment period to specifically request additional comment on the regulatory options for decommissioning criteria for UR facilities. The Commission is not reopening the comment period for any other issue discussed in this Federal potentially receive from all possible sources at a decommissioned facility. Therefore, it is an "all-pathways" standard. Examples of these pathways include:

(a) Direct exposure to radiation from material on the soil surface;

(b) Eating food grown in the soil and eating fish from surface waters;

(c) Inhalation of dust from soil surfaces; and

(d) Drinking water obtained from the groundwater.

Because equivalent doses received through any pathways of exposure would involve equivalent risks to the person exposed, NRC concludes the following with regard to the need to set a separate standard for groundwater:

(a) There is no reason from the standpoint of protection of public health and safety to have a separate, lower dose criterion for one of the pathways (e.g., drinking water) as long as, when combined, the dose from all the pathways doesn't exceed the total dose standard established in the rule;

(b) A standard imposed on a single pathway, such as drinking water, may have been appropriate in the past for site cleanups when a dose-based standard for decommissioning did not exist. It may also be appropriate for chemical contamination when no total limit on exposure exists. However, NRC's final rule on decommissioning would issue an overall TEDE criterion for all radionuclides combined and for all pathways of exposure combined. including drinking water, thus removing the need for a single-pathway standard for groundwater. This is a more uniform method for protecting public health and safety than was contained in NRC's proposed rule that set separate requirements using the MCLs contained in 40 CFR part 141. This is because the MCL requirements do not cover all radionuclides and do not provide a consistent risk standard for different radionuclides as will be provided by adoption of a single dose criterion in the final rule. In addition, the MCLs are based on a modeling approach that has not been updated to reflect current understandings of the uptake and doses resulting from ingestion of radionuclides through drinking water.

The Commission agrees with the commenters that exposures from drinking contaminated groundwater need to be controlled; with the EPA's groundwater protection principles contained in the document "Protecting the Nation's Groundwater: EPA Strategy for the 1990's," 212–1024 (July 1991); and with the EPA position that the environmental integrity of the nation's groundwater resources needs to be protected. Nonetheless, it is the Commission's position that protection of public health and safety is fully afforded by limiting exposure to persons from all potential sources of radioactive material by means of a TEDE at a decommissioned facility. There is, therefore, no compelling reason to impose a separate limit on dose from the drinking water pathway, and the rule has been modified to delete a separate groundwater standard. To make clear NRC's concern over the importance of protecting this resource as a source of potential public exposure, the rule has also been modified to include a direct reference to the groundwater pathway in the all-pathways unrestricted use dose criterion in §20.1402.

In actual situations, based on typical operational practices of most nuclear facilities and on the behavior of radionuclides in the environment for the very large majority of sites. concentrations of radionuclides in the groundwater will be well below the dose criterion of this final rule and would be either below or only marginally above the MCLs codified in 40 CFR Part 141 as referenced in the proposed NRC rule. For example, because the large majority of NRC licensees either use sealed sources or have very short-lived radionuclides, it is highly unlikely that contamination from these facilities would reach the groundwater. Even for facilities like reactors or certain industrial facilities. whose major contaminants are relatively short-lived nuclides like Co-60 or Cs-137, the migration of these nuclides through soil is so slow that it precludes groundwater contamination of any significance. In addition, it is not anticipated that decommissioned nuclear facilities will be located near enough to public water treatment facilities so that treatment facilities would be Tected by the potential groundwater contamination from decommissioned facilities.

As further described in Section IV.A.2, the Commission is basing its decision on analyses in the Final GEIS, that consider cost and practicality factors, to provide additional information regarding decisions on issues such as achieving ALARA levels below the dose criterion of §20.1402 and allowing restricted use. These analyses also consider how these issues relate to groundwater cleanup, including how, and to what level, ALARA efforts should be made, and if. and in what manner, restrictions on use should be considered. The analysis of impacts to populations and the cost of remediating those impacts is particularly important for groundwater

because this resource can be used in a variety of public uses away from the site being decommissioned. The Final GEIS draws from NRC's experience and the public comments regarding contaminated sites. In particular, considerations with regard to groundwater remediation include potential remediation methods such as removal of soil to preclude prospective contamination, pump and treat processes for the cleanup of existing groundwater contamination, and the supply of alternate sources of drinking water, as well as a consideration of administrative costs associated with predicting and measuring levels of contaminated groundwater.

Because of the range of possible parameters, scenarios, and site-specific situations, Section IV.A.2 notes that the analyses in the Final GEIS indicate that there is a wide range of cost-benefit results and there is no unique algorithm that is a decisive ALARA result for all facilities. This finding is especially true for groundwater contamination where the behavior of radionuclides in soil and in the aquifer is highly site-specific; much more so than in concrete. The results of the overall considerations of Section IV.A.2 for all pathways would be applicable to the groundwater component. As pointed out in Section IV.A.2.3.2, it is intended that the regulatory guidance to be developed to support the final rule will provide guidance on these considerations. Although preparation of this guidance is in a preliminary stage, it is anticipated that this guidance would likely indicate that reducing doses to values less than the dose criterion of 0.25 mSv (25 mrem/y) is generally not likely to be cost-effective when evaluated using NRC's regulatory analysis framework presented in NUREG/BR-0058 and NUREG-1530, although there may be ALARA considerations for sites with a relatively large population obtaining all their drinking water from the site plume.

D.2.3 Summary of rule revisions on groundwater and plans for implementation. Based on the above, the Commission concludes that application of a separate groundwater protection limit, in addition to the all pathways dose limit, is not necessary or Justified and has deleted this requirement from its final rule.

As noted above, regulatory guidance to be prepared in support of the final rule will likely describe site-specific conditions under which an ALARA analysis could identify the need to consider reducing the dose below the unrestricted use dose criterion (e.g., large existing population deriving its notification and solicitation of comments have been retained. Sections 20.1405 (a) and (b) provide for the notification of specific government entities and the public in the vicinity of the site when a licensee submits a LTP or decommissioning plan for any of the license termination approaches described in Section IV.A.2.3 or specifically proposes to use restricted use (see Section IV.B) or alternate criteria (see Section IV.C). The NRC will review public comments gathered by the licensee prior to final NRC actions on the licensee's request for license termination. A specific reference has been added in §20.1405(a) to provide for specific notification and solicitation of comment from EPA where the licensee proposes to use alternate criteria. To the extent that EPA has an interest in commenting on proposed decommissionings other than those under alternate criteria, EPA comments would be considered under the general notice and comment provisions of §20.1405.

Specific additional requirements for public participation in cases where restricted use or alternate criteria are proposed by a licensee are discussed further in Section IV.E.3.

E.2.3 Summary of rule revisions on general requirements on public participation and notifications No overall changes were made to the provisions for public notification in the final rule, except to include specific reference to notifying and soliciting comments from the EPA where the licensee proposes to use alternate criteria for license termination.

E.3 Additional Requirements on Public Participation (Including Those for Restricted Use, for Alternate Criteria, and for Use of SSABs) (Proposed Rule § 20.1406(b))

E.3.1 Comments. Comments were specifically submitted on the requirement in §20.1406(b) for the use of SSABs. These comments were submitted both in response to the proposed rule, as well as in connection with the NRC workshop on SSABs held on December 6–8, 1994 (see NUREC/ CR–6307 for a summary of the workshop).

Some commenters supported the proposed requirement in §20.1406(b) that would require licensees to convene a SSAB for restricted release of a site. Other commenters objected to the use of a SSAB in each case involving a restricted release of a site. These commenters expressed concern that use of SSABs was inconsistent with the timeliness rule or that exemptions or other relief from the timeliness rule would be needed; that a need for SSABs has not been demonstrated; and that SSABs are inconsistent with Federal Advisory Committee Act, Administrative Procedures Act, and Atomic Energy Act requirements. Commenters suggested alternatives to mandatory SSABs, such as addressing the need for a board in a public participation plan or providing more flexibility in deciding when to use SSABs. Some commenters indicated that use of SSABs should be extended to the unrestricted use of sites.

E.3.2 Response. One of the major issues raised by the comments and in the workshop discussions on the SSAB was the advisability of mandating a specific public involvement mechanism such as a SSAB as opposed to establishing broad performance criteria that would allow the licensee flexibility in selecting the appropriate public involvement mechanism for a particular site. There was general agreement that flexibility was always desirable. in establishing meaningful performance criteria. However, it should be emphasized that some of those who supported the use of performance criteria did so only in the context of the expansion of the scope of licensee public involvement requirements, including an SSAB, to cover facilities beyond the restricted use category. An additional issue of concern to commenters was whether it was more appropriate for the licensee to establish the SSAB, as contemplated by the proposed rule, or whether the Commission should establish the SSAB. The resolution of this issue depends not only on the objectives that the Commission believes will be served by an SSAB, but also on what the Commission's broader responsibilities are in the public involvement area. This, in turn, relates to another issue raised by the commenters: the scope and duration of a SSAB's responsibilities.

In proposing a requirement for obtaining advice from affected parties on restricted use, the Commission's objective is to involve diverse community interests directly with the licensee in the development of the LTP or decommissioning plan for a proposed restricted use decommissioning. Community concerns, as well as community-based knowledge on the appropriate selection of institutional controls, risk issues, and economic development, can be potentially useful in the development of the LTP or decommissioning plan. For Commission and licensee resources to be used efficiently, the Commission believes that this type of information should be considered and incorporated as

appropriate into the LTP or decommissioning plan before the plan is submitted to the NRC for review. The licensee is the appropriate entity to accomplish this.

In considering a requirement to convene a SSAB or similar group, the Commission has considered alternatives regarding the most effective way to ensure that the licensee considers the diversity of views in the community. Small group discussions can be a more effective mechanism than written comments or large public meetings for articulating the exact nature of community concerns. determining how much agreement or disagreement there is on a particular issue, and facilitating the development of acceptable solutions to issues. Also, the type of close interaction resulting from a small group discussion could serve the licensee well in developing a credible relationship with the community in which it is operating.

Use of public participation methods is consistent with a variety of initiatives being undertaken both within NRC and at other Federal agencies regarding stakeholder involvement in the decommissioning process. Examples of community involvement at NRClicensed sites being decommissioned under the SDMP are described above in Section IV.E.2.2. Similarly, several Federal agencies (including EPA, DOE, the Department of Defense (DOD)) that make up the Federal Facilities Environmental Restoration Dialogue Committee, in their evaluation of the cleanup of Federal facilities, have prepared a set of "Principles for Environmental Cleanup of Federal Facilities," dated August 2, 1995. Principle No. 14 notes the need for agencies to provide for involvement of public stakeholders from affected communities in facility cleanup decisionmaking. It also notes that rather than being an impediment, meaningful stakeholder involvement has, in many instances, resulted in significant cleanup cost reductions.

The Commission envisions that a process for obtaining advice from affected interests would provide the opportunity for public involvement in the important issues related to restricted use of a site similar to those described in Section IV.E.2.2. In particular, one of the important issues would likely be the unavailability of the site for full unrestricted public use. In its deliberations on the rule, the Commission has envisioned that the following should occur:

(1) The licensee would present information to, and seek advice from, affected parties on the provisions for Section IV.C.3. In addition, use of alternate criteria will only be considered by the Commission after review of the NRC staff's recommendations that fully address any comments provided by the public and EPA regarding the decommissioning or license termination plan.

E.3.3 Summary of rule revisions on SSABs. Specific text referring to SSABs has been replaced with a requirement that licensees seek community involvement and advice on any plans for restricted use or alternate criteria for decommissioning through a variety of methods. This requirement includes provisions for specifically how that advice is to be sought and documented in the LTP or decommissioning plan. Regulatory guidance is planned which will include criteria for establishing and using the processes for seeking such advice, including establishing SSABs, and for delineating those situations in which an SSAB may not be appropriate. The guidance will discuss that the expected starting point in providing an opportunity for public involvement is the establishment of an SSAB; however, the provisions of the rule provide licensees the flexibility to use other approaches where appropriate.

E.4 Specific Questions on Functioning of SSABs

E.4.1 Comments. A number of comments were received on the functioning of SSABs including their responsibilities, membership, independence and support, meetings, and results.

(1) Some commenters recommended that SSABs should be given responsibilities beyond those specified in proposed § 20.1407(a). Other commenters stated that the rule should restrict SSAB activities to a specific mission which is advisory only and nontechnical.

(2) With regard to membership in SSABs, a number of comments recommended specifically how the SSAB and its membership should be constituted. Some commenters stated that many of the proposed SSAB issues that are listed appear to require specialized expertise that members of the general public might not have. Some commenters questioned whether NRC and other Government agencies should be prohibited from participating in SSABs because of conflict of interest questions. Other commenters stated that the NRC should be officially represented on the SSAB.

(3) With regard to independence of and support for SSABs, some comments received stated that an SSAB should be selected and operated independently of the licensee. One commenter stated that the SSAB would be unique as presently proposed because it does not appear to be accountable to its employer. Comments were received regarding how SSAB costs would be contained and how they would be paid, including costs of technical consultants to the SSAB or independent SSAB labs and experts.

(4) With regard to SSAB meetings and records, comments were provided concerning frequency, advertisement and openness of meetings, and access to licensee official documents, both those that are part of the public docket and those that contain proprietary or other confidential information;

(5) With regard to use of SSAB results, comments were received concerning the actions expected to be taken by the licensee and the NRC on the advice or comments of the SSAB. These actions include a licensee's analysis of SSAB recommendations, the need to obtain the SSAB's consensus on aspects of the decommissioning plan, and the effect on time restraints of submitting a decommissioning plan reconciling SSAB advice.

E.4.2 Response. Based on the discussion in Section IV.E.3.2 regarding the need to explore site-specific alternatives as opposed to generally mandated SSABs, the rule contains broad provisions for obtaining community advice and recommendations through such bodies. The purpose of the requirements on public involvement is to obtain meaningful public input into preparation of the plan for decommissioning the site when restrictions on future use or proposals for alternate criteria are planned. To allow for flexibility, Section IV.E.3.2 indicates that the final rule has been modified to establish general requireme. s for obtaining such advice while retaining the principal objectives of an SSAB from §20.1407(b)-(f) of the proposed rule. The details, such as specific issues of size, membership, responsibilities, administration, meetings, and records requested in these comments are more appropriately contained in regulatory guidance. With regard to issues of funding public involvement, reasonable efforts towards obtaining advice from affected parties should be undertaken by the licensee. such as sponsoring and holding community meetings and distributing information at those meetings regarding the rationale for and nature of the restricted use. Examples of these meetings are those held for reactor facilities and those held for several

SDMP sites, for example the Cushing site.

E.4.3 Summary of rule revisions on functioning of SSABs. As noted in Sections E.3.2 and E.4.2 above, the principal objectives of SSABs have been retained in §20.1403(d) which replaces the detailed provisions in proposed §20.1407 (b) through (f) of the proposed rule. The guidance that the NRC develops to implement the final rule will include additional guidance on seeking advice from affected parties, including establishing and using SSABs.

F. Other Procedural and Technical Issues

F.1 State and NRC Compatibility

F.1.1 Comments. Some commenters stated that States should have the authority to demand stricter radiation protection standards than the Federal Government. Some commenters recommended that States not be allowed to set less strict conditions. Other commenters stated that radiological criteria should be an area of strict compatibility and States should not be permitted to impose more stringent standards. Specific comments raised included questions as to which standard would apply if there was a conflict. whether a State would need NRC approval to require more strict standards, application of ALARA provisions, who should pay for costs if more strict State standards are applied, exemptions, and grandfathering provisions similar to those in Section IV.F.2.

F.1.2 Response. The proposed rule did not propose a compatibility determination because the Commission was in the process of developing a compatibility policy. Instead, comments were requested on compatibility and the comments received were divided on this issue.

The current compatibility policy categorizes rules into four "divisions." Division 1 rules are those that Agreement States must adopt, essentially verbatim, into their regulations. These rules include provisions that form the basic language of radiation protection and include technical definitions and basic radiation protection standards such as public dose limits, occupational exposure limits and effluent release limits. Division 2 rules address basic principles of radiation safety and regulatory functions. Although Agreement States must address these principles in their regulations, the use of language identical to that in NRC rules is not necessary if the underlying principles are the same. Also, the Agreement States F.3 Finality of Decommissioning and Future Site Reopening (Proposed Rule § 20.1401(c))

F.3.1 Proposed rule contents. Proposed § 20.1401(c) stated that after a site has been decommissioned and the license terminated in accord with the criteria of the proposed rule, the Commission will require additional cleanup only if, based on new information, it determined that residual radioactivity remaining at the site could result in significant public risk.

F.3.2 Comments. Some commenters stated that decommissioning a nuclear facility and releasing a site should be accomplished as a final regulatory action unless new information indicates there is a significant health and safety risk and net benefit to future cleanup. These commenters cited financial reasonableness, the low risk associated with the criteria, and the incentive to complete decommissioning. Other commenters stated that they did not agree that these actions should be final and that the site should be cleaned up to account for mistakes, discovery of contamination, or new health findings. It was noted that the terms "significant public risk" and "new information" used in proposed §20.1401(c) needed to be explained and appropriately defined.

F.3.3 Response. The wording of final § 20.1401(c) states that the Commission will require additional cleanup only if, based on new information, it determines that residual radioactivity remaining at the site could result in significant public risk. The low level of estimated risk associated with the final rule's dose criteria, coupled with the conservatisms in the methodologies that convert these dose criteria to levels of measurable contamination in the environment, should minimize the likelihood that new information, including errors during the accommissioning processes. would significantly impact the protection of public health and safety or the environment.

The Commission believes the fundamental reason for requiring additional cleanup would hinge on the public risk associated with the remaining radioactivity at the site. The existence of additional contamination or noncompliance with the decommissioning plan at a level in excess of the dose criteria but less than the public dose limits in 10 CFR Part 20 would not, by themselves, be sufficient to invalidate the finality provision. Therefore, the wording of §20.1401(c) captures the fundamental issue.

The Commission believes the terms "significant public risk" and "new information," as used in §20.1401(c), do

not require specific definition or clarification. The reason lies in the fact that under the provisions of the rule, a licensee is allowed to demonstrate compliance with the dose criteria through use of several screening and modeling approaches. Each approach has a degree of conservatism associated with the relationship of the measurable level of a contaminant in the environment to the final rule's dose criterion. Because of the surveys required of the licensee and confirmatory surveys routinely performed by NRC, the chances of previously unidentified contamination being discovered would be expected to be small. Also, contamination that would pose a significant public risk above the levels implied by the dose criterion is expected to be smaller still.

Another possibility is that ongoing studies will lead to the conclusion that an increased risk associated with a given exposure to radiation exists. Although such an increase can occur as indicated by the continuing studies of Japanese atomic bomb survivors, the Commission believes that demographic studies of populations exposed to differing background exposure levels provide a defensible bound on the magnitude of any increase in the dose to risk conversion factor. Taken alone, any such increase would not be expected to affect finality decisions.

Thus, because any challenge to finality is likely to involve some unexpected combination of factors, the Commission believes that attempting to specifically define what constitutes "new information" or "significant public risk" is ill-advised because the determination would be made on a caseby-case basis.

As noted in Sections IV.A and IV.D. there are issues that have been raised by EPA regarding the acceptability of the unrestricted dose criterion as well as the inclusion of a separate groundwater standard. These issues were raised during the public comment period as well as during a public meeting held April 21, 1997 to explore differences between NRC and EPA on certain issues in the final rule. As noted in those sections, EPA has indicated that it preferred a 0.15 mSv/y (15 mrem/y) TEDE dose criterion for unrestricted use and inclusion of a separate groundwater standard as were proposed in NRC's proposed rule. At the April 21, 1997 meeting, EPA also indicated that it had concerns with inclusion of alternate criteria and with certain public participation aspects of the rule. For the reasons described in some detail in Sections IV.A, IV.C, IV.D, and IV.E, the Commission has included in the final

rule a 0 25 mSv/y (25 mrem/y) dose criterion which would apply to all exposure pathways including groundwater, an alternate criteria provision for certain difficult cases to reduce the need for requests for exemptions, and provisions for substantive participation by the public, including EPA.

As described in some detail in Sections IV.A-IV.E. the Commission believes that the overall approach to license termination in this final rule (that includes unrestricted and restricted use dose criteria, alternate criteria, and ALARA considerations) protects public health and safety, and that the approach to drinking water protection in the final rule provides an appropriate and more consistent level of protection of public health and safety than use of MCLs. In addition, as is further described in those sections, it is anticipated that in the large majority of situations the combination of ALARA considerations, the nature of the concrete and soil removal processes, the use of restrictions on site use where appropriate, and the effects of radionuclide decay and transport mechanisms in the environment will result in the large majority of NRC licensees meeting the criteria preferred by EPA. Those sections also clearly indicate that alternate criteria will be confined to rare situations and require specific Commission approval of the license termination in those cases. In addition, the Commission believes that the provisions of the final rule as described in Section IV.E provide for a substantive level of public involvement in the decommissioning process.

Thus the Commission believes that the criteria of this final rule provides protection comparable to that preferred by EPA and that therefore it would be reasonable for EPA to find NRC's rule sufficiently protective.

Licensees should be aware that if they terminate a license using the criteria of this rule, there is some potential that the license termination may be revisited as part of an EPA proceeding, although such an action would not seem reasonable for the same reasons that site cleanups noted above would not be revisited, i.e., it is not believed that significant public risk would be determined to exist.

F.3.4 Summary of rule revisions on finality. Based on this discussion, the rule has not been changed with regard to the finality issue.

The variations in radon levels described above make it very difficult to distinguish between naturally occurring radon and radon resulting from licensed material. In addition, it is impractical to predict prospective doses from exposure to indoor radon due to problems in predicting the design features of future building construction. Because of these variations and the limitation of measurement techniques, the Commission believes that it is not practical for licensees to distinguish between radon from licensed activities at a dose comparable to a 0.25 mSv/y (25 mrem/y) dose criterion and radon which occurs naturally. Therefore, in implementing the final rule, licensees will not be expected to demonstrate that radon from licensed activities is indistinguishable from background on a site-specific basis. Instead this may be considered to have been demonstrated on a generic basis when radium, the principal precursor to radon, meets the requirements for unrestricted release. without including doses from the radon pathway.

In some instances it may not be reasonable to achieve levels of residual concentrations of radon precursors within the limit for unrestricted use. As discussed in Section IV.B for cases such as these, restricting site use by use of institutional controls could be considered by a licensee as a means to limit the doses from precursors by limiting access to the site. Under the restricted use provisions of the rule. these doses are required to be further reduced based on ALARA principles. In developing guidance on the application of ALARA in such cases, the Commission will also consider the practicality of requiring as part of controls the use of radon mitigation techniques in existing or future structures.

F.6.4 Summary of rule revisions. No change to the final rule has been made.

F.7 Calculation of TEDE Over 1000 Years to Demonstrate Compliance With Dose Standard (Proposed Rule § 20.1403(a))

F.7.1 Proposed rule contents. Proposed § 20.1403(a) stated that when calculating the TEDE, the licensee shall base estimates on the TEDE expected within the first 1000 years after decommissioning.

F.7.2 Comments. Some commenters objected to the proposed 1000-year time frame for calculating dose and wanted it lengthened to better predict health effects over the hazardous life of each isotope. Other commenters wanted the proposed 1000-year time frame shortened because it is inconsistent

with 10 CFR part 40. Appendix A, and 10 CFR part 61 that use times of 200– 500 years.

F.7.3 Response. As previously discussed in the preamble to the proposed rule, the Commission believes use of 1000 years in its calculation of maximum dose is reasonable based on the nature of the levels of radioactivity at decommissioned sites and the potential for changes in the physical characteristics at the site over long periods of time. Unlike analyses of situations where large quantities of long-lived radioactive material may be involved (e.g., a high-level waste repository) and where distant future calculations may provide some insight into consequences, in the analysis for decommissioning, where the consequences of exposure to residual radioactivity at levels near background are small and peak doses for radionuclides of interest in decommissioning occur within 1000 years, long term modeling thousands of years into the future of doses that are near background may be virtually meaningless. In 10 CFR part 40, Appendix A makes reference to both a 200-year and 1000-year time frame. 10 CFR part 61 references the design of a physical barrier rather than a calculation of exposure.

F.7.4 Summary of rule revisions. This provision has been retained in \S 20.1401(d) of the final rule.

G. Other Comments

G.1 Definitions (Proposed Rule § 20.1003)

G.1.1 Comments. There were comments on several definitions in § 20.1003 of the proposed rule including the following:

(1) With regard to the definition of background radiation, several commenter opposed defining "background radiation" in terms of currently existing levels and proposed defining it at the level existing when human beings and other organisms evolved; i.e., man-made sources of radiation should not be considered to be a part of "background radiation." One commenter suggested that the term "naturally occurring radioactive material," that is used in the definition of "background radiation," should also be defined. This commenter also suggested that the word "like," that precedes "Chernobyl," should be replaced with the words "such as" to clearly indicate that an example is being provided.

(2) With regard to the definition of decommissioning, several commenters recommended that license termination

not be specified in the definition of decommissioning because it is a separate issue from decommissioning Some commenters stated that licenses should be terminated only when sites are given unrestricted release and that restricted use should not be permitted or included in the definition.

(3) Other comments were also received requesting clarification of other definitions contained in the rule, including inclusion of radon in the definition of background and the definitions of critical group, restricted use, release of portions of sites, indistinguishable from background, readily removable radioactivity, and SSABs.

G.1.2 Response. The only modification that the proposed rule made to the existing definition of background in 10 CFR part 20 was the inclusion of the phrase "or from past nuclear accidents like Chernobyl that contribute to background radiation and are not under the control of the licensee." The reason for this modification was to further clarify the existing requirement regarding sources of radiation and radionuclides that can be excluded from licensee evaluation. After review of the comments, the Commission continues to believe that the inclusion in background of global fallout from weapons testing and accidents such as Chernobyl is appropriate. No compelling reason was presented that would indicate that remediation should include material over that the licensee has no control and that is present at comparable levels in the environment both on and offsite.

The existing definition of decommissioning in 10 CFR parts 30. 40, 50, 70, and 72 was incorporated into the regulations on June 27, 1988 (53 FR 24018). The Commission continues to believe that "decommissioning" is a term for a process which ultimately leads to termination of an NRC license for unrestricted use. The only change to the existing definition made by the proposed rule would be adding "release of property under restricted conditions" to the process of termination of the license. In response to commenters who disagreed with permitting restricted use. Section IV.B contains a detailed review of issues on acceptability of restricted use. Based on that review, the final rule continues to permit restricted use. Therefore, the definition in the proposed rule is not changed.

The remaining comments on definitions reflect specific technical concerns regarding use of the terms rather than the definition itself. These concerns are discussed in detail in the responses to the technical issues (UMTRCA), NRC is responsible for the regulation of certain nonradioactive hazardous materials.

With regard to NARM, NRC's legislative and regulatory authority extends to those materials and facilities under the Atomic Energy Act of 1954. as amended, and not to accelerator produced materials or naturally occurring radioactive material, except as it is defined as source material in 10 CFR part 40.4. Section IV.A, notes that, although some commenters questioned the relationship of this rule to NARM. the criteria of this rule apply to residual radioactivity from activities under a licensee's control and not to background radiation (that includes radiation from naturally occurring radioactive material (NORM)). There are a wide variety of sites containing NORM subject to EPA jurisdiction and not licensed by the NRC. The extent to which the criteria in this rule would apply to these sites would be based on a separate evaluation. However, the considerations and analyses done for this rulemaking in the Final GEIS and regulatory analysis regarding large fuel cycle and non-fuel-cycle facilities containing large quantities of naturally occurring nuclides such as uranium and thorium are appropriate for certain NORM sites. and the broad provisions of the rule (such as control of sites with restrictions imposed, use of alternate cap values. use of alternate criteria, and public participation aspects) may be useful in considerations regarding NORM sites.

G.7 Recycle

G.7.1 Comments. Commenters recommended that recycling of equipment or materials be addressed in more depth in the final rule. Several commenters stated that recycling of contaminated materials that results in increased exposures to members of the public is unacceptable. Other commenters favored establishment of criteria for recycled materials.

G.7.2 Response. The proposed rule did not specifically address the recycle of material or equipment decontaminated as a result of the decommissioning process. The Commission has a separate consideration underway of the issues related to cases when the licensee proposes to intentionally release material containing residual radioactivity that could become available for reuse or recycle.

Because current NRC regulations do not contain explicit radiological criteria for release of equipment and materials, release from licensed facilities is currently determined by NRC on a caseby-case basis using existing guidance

and practices. Current practices include radiation surveys to document the absence of licensed radioactive material, general guidance for reactors contained in Regulatory Guide 1.86 or similar guidance issued for materials facilities, and site-specific technical specifications and license conditions. Although these criteria were not originally derived for the case of recycle, they have been applied for many years in a wide variety of contexts.

Continuation of the case-by-case procedure in the future may not be practical because of increased quantities of material expected from larger facility decommissionings. Also, interest in recycling slightly contaminated material is growing both in the United States and in other countries as a means of conserving resources by limiting the amount of new raw materials that are necessary to produce new products and equipment and by reducing the costs of disposing of large volumes of slightly contaminated material that may pose very small risks to the general public. Codifying criteria would allow NRC to more effectively deal with these issues. Regulatory action separate from this decommissioning action by NRC, that would provide clear, consistent criteria in this area, is being considered. Specifically, the NRC is cooperating with the EPA in developing the technical basis for a recycle rulemaking. At present, the EPA is developing its plans for such a rulemaking. The NRC will determine what course of action it will take regarding rulemaking related to recycle after consideration of EPA plans. Full opportunity for early public involvement and comment regarding that regulatory action is anticipated. Because of this background, no revision to this decommissioning rule to consider recycling is being made.

G.8 The Rulemaking Process

G.8.1 Comments. Several commenters expressed satisfaction with the enhanced rulemaking process undertaken by the NRC for the decommissioning rule. Of those commenters who opposed the proposed decommissioning standards for not being sufficiently restrictive, some were critical of the rulemaking process and suggested that the NRC had ignored their earlier participation. Other commenters expressed dissatisfaction with the proposed standards because they are overly restrictive. The DOE stated that it supported the NRC effort to issue the rule and the joint efforts of the EPA and the NRC to coordinate their respective rulemaking proceedings.

G.8.2 Response. The NRC has conducted what it considers to be an

extensive effort at enhancing participation in the early stages of this rulemaking process through a series of workshops and environmental impact statement scoping meetings for affected interests that solicited public comment with regard to radiological criteria for decommissioning. The extent of these meetings was discussed in the preamble to the proposed rule.

The workshops and the scoping meetings were not designed to seek "consensus" in the sense that there is agreement on how each issue should be resolved, but rather to ensure that, with informed discussion, relevant issues have been identified and information exchanged on these issues.

Subsequent to the workshops and scoping meetings, the Commission developed the policies and requirements that were deemed appropriate for a rule on radiological criteria for decommissioning. Information and concepts developed in the workshops were factored into this process. For example, a number of themes from the workshops, such as consideration of restricted use options. increased public participation in the site decommissioning process, and a desire to return sites to levels indistinguishable from background, were considered during the rulemaking. The Commission also considered the approaches of scientific bodies such as the ICRP and NCRP, precedents of its other rulemakings with regard to radiation protection such as 10 CFR part 20, input from EPA regarding appropriate risk levels, technical input from NRC contractors regarding capability to measure at low radiation levels, and the costs and impacts of achieving alternate levels.

Preliminary conclusions regarding this effort were contained in the NRC staff's draft rule (59 FR 4868, February 2, 1994) that was sent to Agreement States, workshop participants, and other interested parties. The intent of this informal comment period in advance of a proposed rule was to provide an opportunity for interested parties to comment on the adequacy of the draft criteria.

Resolution of comments from the workshops and from circulation of the NRC staff draft was discussed in the preamble of the proposed rule published on August 22, 1994 (59 FR 43200). The preamble indicates the evolution of the NRC's approach to this rulemaking as a result of the workshops and the other activities noted above.

Clearly, there are a number of specific areas which remain difficult to resolve or on which to reach a "consensus." These areas include the precise level of licensees regulated by the NRC and Agreement States, small entities covered by this rule are primarily licensees that possess and use only materials with short half-lives or materials only in sealed sources. Decommissioning efforts for these licensees are simple and require only that sealed sources are properly disposed of or that short-lived materials are allowed to decay. Complete details of the cost analysis are contained in the regulatory analysis.

XI. Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50,109, does not apply to this final rule and therefore, a backfit analysis is not required for this final rule because these amendments do not involve reactor operations and therefore do not involve any provisions that would impose backfits as defined in 10 CFR 50.109(a)(1).

XII. Small Business Regulatory **Enforcement Fairness Act**

In accordance with the Small **Business Regulatory Enforcement** Fairness Act of 1996, the NRC has determined that this action is not a "major" rule and has verified this determination with the Office of Information and Regulatory Affairs, Office of Management and Budget.

List of Subjects

10 CFR Part 20

Byproduct material, Criminal penalties, Licensed material, Nuclear materials, Nuclear power plants and reactors, Occupational and public dose limits. Occupational safety and health. Packaging and containers, Permissible doses, Radiation protection, Reporting and recordkeeping requirements, Respiratory protection. Special nuclear material, Source material, Surveys and monitoring, Waste treatment and disposal.

10 CFR Part 30

Byproduct material, Criminal penalties, Government contracts. Intergovernmental relations, Isotopes, Nuclear materials, Radiation protection, Reporting and recordkeeping requirements.

10 CFR Part 40

Criminal penalties, Government contracts, Hazardous materials transportation, Nuclear materials, Reporting and recordkeeping requirements, Source material, Uranium.

10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

10 CFR Part 51

Administrative practice and procedure, Environmental impact statements, Environmental regulations, assessments and reports, NEPA procedures, Nuclear materials, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

10 CFR Part 70

Criminal penalties, Hazardous materials transportation, Material control and accounting, Nuclear materials, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

10 CFR Part 72

Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974. as amended, and 5 U.S.C. 552 and 553; the NRC is adopting the following amendments to 10 CFR parts 20, 30, 40, 50, 51, 70, and 72.

PART 20-STANDARDS FOR **PROTECTION AGAINST RADIATION**

1. The authority citation for part 20 continues to read as follows:

Authority: Secs. 53, 63, 65, 81, 103, 104, 161, 182, 186, 68 stat. 930, 933, 935, 936, 937, 948, 953, 955, as amended (2 U.S.C. 2073, 2093. 95, 2111, 2133, 2134, 2201, 2232, 2236), secs. 201, as amended, 202, 206, 88 stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846)

2. In §20.1003, the definition of Background radiation is revised and new definitions Critical Group, Decommission, Distinguishable from background, and Residual radioactivity are added in alphabetical order to read as follows:

§20.1003 Definitions. *

*

Background radiation means radiation from cosmic sources; naturally occurring radioactive material, including radon (except as a decay product of source or special nuclear material); and global fallout as it exists in the environment from the testing of

*

nuclear explosive devices or from past nuclear accidents such as Chernobyl that contribute to background radiation and are not under the control of the licensee. "Background radiation" does not include radiation from source, byproduct, or special nuclear materials regulated by the Commission.

Critical Group means the group of individuals reasonably expected to receive the greatest exposure to residual 'radioactivity for any applicable set of circumstances.

Decommission means to remove a facility or site safely from service and reduce residual radioactivity to a level

that permits-(1) Release of the property for

unrestricted use and termination of the license: or (2) Release of the property under

restricted conditions and termination of the license.

Distinguishable from background means that the detectable concentration of a radionuclide is statistically different from the background concentration of that radionuclide in the vicinity of the site or, in the case of structures, in similar materials using adequate measurement technology, survey, and statistical techniques. * *

Residual radioactivity means radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee. but excludes background radiation. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material at the site and previous burials at the site, even if those burials were made in accordance with the provisions of 10 CFR part 20.

*

3. In §20.1009, paragraph (b) is revised to read as follows:

*

§20.1009 Information collection requirements: OMB approval.

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(b) The approved information collection requirements contained in this part appear in §§20.1003, 20.1101, 20.1202, 20.1203, 20.1204, 20.1206, 20.1208, 20.1301, 20.1302, 20.1403, 20.1404, 20.1406, 20.1501, 20.1601, 20.1703, 20.1901, 20.1902, 20.1904, 20.1905, 20.1906, 20.2002, 20.2004, 20.2006, 20.2102, 20.2103, 20.2104, 20.2105, 20.2106, 20.2107, 20.2108,

the issues by the participants represented; and

(iii) A publicly available summary of the results of all such discussions, including a description of the individual viewpoints of the participants on the issues and the extent of agreement and disagreement among the participants on the issues; and

(e) Residual radioactivity at the site has been reduced so that if the institutional controls were no longer in effect, there is reasonable assurance that the TEDE from residual radioactivity distinguishable from background to the average member of the critical group is as low as reasonably achievable and would not exceed either—

(1) 100 mrem (1 mSv) per year; or (2) 500 mrem (5 mSv) per year

provided the licensee— (i) Demonstrates that further reductions in residual radioactivity necessary to comply with the 100 mrem/y (1 mSv/y) value of paragraph (e)(1) of this section are not technically achievable, would be prohibitively expensive, or would result in net public or environmental harm;

(ii) Makes provisions for durable institutional controls;

(iii) Provides sufficient financial assurance to enable a responsible government entity or independent third party, including a governmental custodian of a site, both to carry out periodic rechecks of the site no less frequently than every 5 years to assure that the institutional controls remain in place as necessary to meet the criteria of § 20.1403(b) and to assume and carry out responsibilities for any necessary control and maintenance of those controls. Acceptable financial assurance mechanisms are those in paragraph (c) of this section.

§ 20.1404 Alternate criteria for license termination.

(a) The Commission may terminate a license using alternate criteria greater than the dose criterion of §§20.1402, 20.1403(b), and 20.1403(d)(1)(i)(A), if the licensee—

(1) Provides assurance that public health and safety would continue to be protected, and that it is unlikely that the dose from all man-made sources combined, other than medical, would be more than the 1 mSv/y (100 mrem/y) limit of subpart D, by submitting an analysis of possible sources of exposure;

(2) Has employed to the extent practical restrictions on site use according to the provisions of §20.1403 in minimizing exposures at the site; and

(3) Reduces doses to ALARA levels. taking into consideration any detriments such as traffic accidents expected to

potentially result from decontamination and waste disposal.

(4) Has submitted a decommissioning plan or License Termination Plan (LTP) to the Commission indicating the licensee's intent to decommission in accordance with §§30.36(d), 40.42(d), 50.82 (a) and (b), 70.38(d), or 72.54 of this chapter, and specifying that the licensee proposes to decommission by use of alternate criteria. The licensee shall document in the decommissioning plan or LTP how the advice of individuals and institutions in the community who may be affected by the decommissioning has been sought and addressed, as appropriate, following analysis of that advice. In seeking such advice, the licensee shall provide for:

(i) Participation by representatives of a broad cross section of community interests who may be affected by the decommissioning;

(ii) An opportunity for a comprehensive, collective discussion on the issues by the participants represented; and

(iii) A publicly available summary of the results of all such discussions, including a description of the individual viewpoints of the participants on the issues and the extent of agreement and disagreement among the participants on the issues.

(b) The use of alternate criteria to terminate a license requires the approval of the Commission after consideration of the NRC staff's recommendations that will address any comments provided by the Environmental Protection Agency and any public comments submitted pursuant to § 20.1405.

§ 20.1405 Public notification and public participation.

Upon the receipt of an LTP or decommissioning plan from the licensee, or a proposai by the licensee for release of a site pursuant to §§ 20.1403 or 20.1404, or whenever the Commission deems such notice to be in the public interest, the Commission shall:

(a) Notify and solicit comments from: (1) local and State governments in the vicinity of the site and any Indian Nation or other indigenous people that have treaty or statutory rights that could be affected by the decommissioning; and

(2) the Environmental Protection Agency for cases where the licensee proposes to release a site pursuant to § 20.1404.

(b) Publish a notice in the Federal Register and in a forum, such as local newspapers, letters to State or local organizations, or other appropriate forum, that is readily accessible to individuals in the vicinity of the site, and solicit comments from affected parties.

§ 20.1406 Minimization of contamination.

Applicants for licenses, other than renewals, after August 20, 1997, shall describe in the application how facility design and procedures for operation will minimize, to the extent practicable, contamination of the facility and the environment, facilitate eventual decommissioning, and minimize, to the extent practicable, the generation of radioactive waste.

5. In §20.2402, paragraph (b) is revised to read as follows:

§ 20.2402 Criminal penalties.

(b) The regulations in §§20.1001 through 20.2402 that are not issued under Sections 161b, 1611, or 1610 for the purposes of Section 223 are as follows: §§ 20.1001, 20.1002, 20.1003, 20.1004, 20.1005, 20.1006, 20.1007, 20.1008, 20.1009, 20.1405, 20.1704, 20.1903, 20.1905, 20.2002, 20.2007, 20.2301, 20.2302, 20.2401, and 20.2402.

PART 30—RULES OF GENERAL APPLICABILITY TO DOMESTIC LICENSING OF BYPRODUCT MATERIAL

6. The authority citation for part 30 continues to read as follows:

Authority: Secs. 81, 82, 161, 182, 183, 186, 68 Stat. 935, 948, 953, 954, 955, as amended, sec. 234, 83 Stat 444, as amended (42 U.S.C. 2111, 2112, 2201, 2232, 2233, 2236, 2282): secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 30.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102-486, sec. 2902, 106 Stat 3123 (2 U.S.C. 5851). Section 30.34(b) also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 30.61 also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

7. In § 30.4, the definition of *Decommission* is revised to read as follows:

§ 30.4 Definitions.

* *

Decommission means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits—

(1) Release of the property for unrestricted use and termination of the license; or

(2) Release of the property under restricted conditions and termination of the license.

. . . .

(1) Release of the property for unrestricted use and termination of the license: or

(2) Release of the property under restricted conditions and termination of the license.

16. In § 50.82, paragraphs (a)(11)(ii) and (b)(6)(ii) are revised to read as follows:

§ 50.82 Termination of license.

- *
- (a) * * *
- (11) * * *

(ii) The terminal radiation survey and associated documentation demonstrates that the facility and site are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20. subpart E.

- (b) * * *
- * * * (6)

(ii) The terminal radiation survey and associated documentation demonstrate that the facility and site are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E.

PART 51-ENVIRONMENTAL **PROTECTION REGULATIONS FOR** DOMESTIC LICENSING AND RELATED **REGULATORY FUNCTIONS**

17. The authority citation for part 51 continues to read as follows:

Authority: Sec. 161, 68 Stat. 948, as amended (42 U.S C. 2201); secs. 201, as amended, 202, 88 Stat. 1242, as amended, 1244 (42 U.S.C. 5841, 5842).

Subpart A also issued under National Environmental Policy Act of 1969, secs 102. 104, 105, 83 Stat. 853-854, as amended (42 U.S.C. 4332, 4334, 4335); and Pub. L. 95-604, Title II, 92 Stat. 3033-3041; and sec. 193, Pub. L. 101-575, 104 Stat. 2835 (42 U.S.C. 2243). Sections 51.20, 51.30, 51.60, 51.61, 51.80, and 51.97 also issued under secs. 135, 141, Pub. L. 97-425, 96 Stat. 2232, 2241, and sec. 148, Pub. L. 100-203, 101 Stat. 1330-223 (42 U.S.C. 10155, 10161, 10168). Section 51.22 also issued under sec. 274, 73 Stat. 688, as amended by 92 Stat. 3036-3038 (42 U.S.C. 2021) and under Nuclear Waste Policy Act of 1982, sec. 121, 96 Stat. 2228 (42 U.S Č 10141). Sections 51.43, 51.67, and 51.109 also issued under Nuclear Waste Policy Act of 1982, sec. 114(f), 96 Stat. 2216, as amended (42 U.S.C. 10134(f)).

18. In § 51.22, paragraph (c)(20) is added to read as follows:

§ 51.22 Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review.

(c) * *

(20) Decommissioning of sites where licensed operations have been limited to the use of-

(i) Small quantities of short-lived radioactive materials; or

(ii) Radioactive materials in sealed sources, provided there is no evidence of leakage of radioactive material from these sealed sources. * * *

PART 70-DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL

19. The authority citation for part 70 continues to read as follows:

Authority: Secs. 51, 53, 161, 182, 183, 68 Stat. 929, 930, 948, 953, 954, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2071, 2073, 2201, 2232, 2233, 2282); secs. 201, as amended, 202, 204, 206, 88 Stat. 1242, as amended, 1244, 1245, 1246 (42 U.S.C. 5841, 5842, 5845, 5846).

Sections 70.1(c) and 70.20a(b) also issued under secs. 135, 141, Pub. L. 97-425, 96 Stat. 2232, 2241 (42 U.S.C. 10155, 10161). Section 70.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102-486 sec. 2902, 106 Stat. 3123 (42 U.S.C. 5851). Section 70 21(g) also issued under sec. 122, 68 Stat 939 (42 U.S C. 2152). Section 70 31 also issued under sec. 57d, Pub. L. 93-377, 88 Stat. 475 (42 U.S.C. 2077). Sections 70.36 and 70 44 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S C. 2234). Section 70 61 also issued under secs. 186, 187, 68 Stat. 955 (42 U.S C. 2236, 2237). Section 70.62 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S C. 2138).

20. In § 70.4, the definition of Decommission is revised to read as follows:

§70.4 Definitions.

Decommission means to remove a

facility or site safely from service and reduce residual radioactivity to a level that permits-

(1) Release of the property for unrestricted use and termination of the license: or

(2) Release of the property under restricted conditions and termination of the license.

21. In §70.25, paragraph (f)(5) is added and paragraph (g)(3)(iv) is revised to read as follows:

§70.25 Financial assurance and recordkeeping for decommissioning.

* (f) * * *

*

.

(5) When a governmental entity is assuming custody and ownership of a site, an arrangement that is deemed acceptable by such governmental entity.

(g) * * * (3) * * *

(iv) All areas outside of restricted areas that contain material such that, if

the license expired, the licensee would be required to either decontaminate the area to meet the criteria for decommissioning in 10 CFR part 20. subpart E, or apply for approval for disposal under 10 CFR 20.2002.

22. In § 70 38, the introductory text of paragraph (j)(2) and paragraph (k)(3) are revised to read as follows:

§70.38 Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas.

*

*

* *

(j) * * * (2) Conduct a radiation survey of the premises where the licensed activities were carried out and submit a report of the results of this survey, unless the licensee demonstrates in some other manner that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E. The licensee shall, as appropriate-

* (k) * * *

(3)(i) A radiation survey has been performed which demonstrates that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20. subpart E; or

(ii) Other information submitted by the licensee is sufficient to demonstrate that the premises are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E.

PART 72-LICENSING **REQUIREMENTS FOR THE** INDEPENDENT STORAGE OF SPENT NUCLEAR FUEL AND HIGH-LEVEL **RADIOACTIVE WASTE**

23. The authority citation for part 72 continues to read as follows:

Authority: Secs. 51, 53, 57, 62, 63, 65, 69, 81, 161, 182, 183, 184, 186, 187, 189, 68 Stat. 929, 930, 932, 933, 934, 935, 948, 953, 954, 955, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2071, 2073, 2077, 2092, 2093, 2095, 2099, 2111, 2201, 2232, 2233, 2234, 2236, 2237, 2238, 2282); sec. 274, Pub. L. 86-373, 73 Stat. 688, as amended (42 U.S.C. 2021); sec. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846); Pub. L. 95-601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102-486, sec. 2902, 106 Stat. 3123 (42 U.S.C. 5851); sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Secs. 131, 132, 133, 135, 137, 141, Pub. L. 97-425, 96 Stat. 2229, 2230, 2232, 2241, sec. 148, Pub. L. 100-203, 101 Stat. 1330-235 (42 U.S.C. 10151, 10152, 10153, 10155, 10157, 10161, 10168).

Section 72.44(g) also issued under secs. 142(b) and 148 (c), (d), Pub. L. 100-203, 101 NUCLEAR REGULATORY COMMISSION

10 CFR Parts 20 and 40

RIN 3150-AD65

Radiological Criteria for License Termination: Uranium Recovery Facilities

AGENCY: Nuclear Regulatory Commission.

ACTION: Request for additional comment on uranium recovery facilities.

SUMMARY: The NRC is requesting specific comment on radiological criteria for license termination for uranium recovery facilities. This action is intended to provide full consideration of the issues associated with the decommissioning of these facilities and the regulatory options for resolving these issues.

DATES: Submit comments by October 6, 1997. Comments received after this date will be considered if it is practicable to do so, but the Commission is able to assure consideration only for comments received on or before this date.

ADDRESSES Send comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555– 0001, Attention: Rulemakings and Adjudications Staff.

Hand deliver comments to: 11555 Rockville Pike, Rockville, Maryland, between 7:30 am and 4:15 pm on Federal workdays.

For information on submitting comments electronically, see the discussion under Electronic Access in the Supplementary Information section. FOR FURTHER INFORMATION CONTACT Joseph J. Holonich, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone: (301) 415-7238, e-mail JJH1@nrc.gov; Duane Schmidt, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone: (301) 415-6919, e-mail DWS2@nrc.gov; or Frank Cardile, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone: (301) 415-6185; e-mail FPC@nrc.gov.

SUPPLEMENTARY INFORMATION

I. Background

On August 22, 1994 (59 FR 43200), the NRC published a proposed rule for comment in the Federal Register to amend 10 CFR part 20 of its regulations "Standards for Protection Against Radiation" to include radiological

criteria for license termination (referred to here as the "cleanup rule"). The proposed cleanup rule included criteria for determining the adequacy of remediation of residual radioactivity resulting from the possession or use of source, byproduct, and special nuclear material. The scope of the proposed cleanup rule applied to the decommissioning of facilities licensed under 10 CFR parts 30, 40, 50, 60, 61, 70, and 72. Specifically with regard to uranium mills, the proposed cleanup rule stated that, for uranium mills, the criteria of the rule would apply to the facility but not to the disposal of uranium mill tailings or to soil cleanup. The proposed cleanup rule (§ 20.1401(a)) referred to 10 CFR part 40. Appendix A, where criteria for disposal of mill tailings and soil cleanup of radium already exist.

The public comment period for the proposed cleanup rule closed on January 20, 1995. Comments received on the proposed rule were summarized in NUREG/CR-6353. Comments on the criteria in the proposed rule were received from over 100 organizations and individuals representing a variety of interests. Viewpoints were expressed both in support of and in disagreement with nearly every provision of the rule. Specifically with regard to uranium mills, comments on the proposed rule generally agreed with the exclusion for disposal of mill tailings and soil cleanup. These commenters recommended that the rule also exempt conventional thorium and uranium mill facilities and in situ leach (ISL) (specifically uranium solution extraction) facilities from the scope of coverage because they stated that the decommissioning of these sites is covered by Appendix A to 10 CFR part 40 and 40 CFR part 192.

In responding to the comments on uranium mills during preparation of the final cleanup rule, the Commission considered appropriate regulatory options for addressing requirements for cleanup of soil, buildings, and groundwater at uranium and thorium mills and ISLs (collectively referred to as UR facilities) for unrestricted release of the site other than the tailings disposal and reclamation which are subject to the requirements of 10 CFR part 40, Appendix A.

In considering regulatory options for establishing radiological criteria for license termination of UR facilities, it is important to understand current regulations applicable to remediation of both inactive tailings sites, including vicinity properties, and active uranium and thorium mills. Under the Uranium Mill Tailings Radiation Control Act

(UMTRCA) of 1978, as amended, EPA has the authority to set cleanup standards for uranium mills and, based on that authority, issued regulations in 40 CFR part 192 which contain remediation criteria for these facilities. NRC's regulations in 10 CFR part 40, Appendix A, apply to the decommissioning of its licensed facilities and conform to EPA's standards for uranium mills. At ISLs. the decommissioning activities are similar to those at uranium mills and consist mainly of the cleanup of byproduct material as defined in Section 11e.(2) of the Atomic Energy Act of 1954, as amended.

Thus, applicable cleanup standards already exist for soil cleanup of radium in 10 CFR part 40, Appendix A, Criterion 6(6). Radium is the main contaminant at uranium mills in the large areas (20-400 hectares (50 to 1000 acres)) where windblown contamination from the tailings pile has occurred, and at ISLs (in holding ponds). These standards require that the concentration of radium in those large areas not exceed the background level by more than 0.19 Bq/gm (5 pCi/gm) in the first 15 cm (6 inches) of soil, and 0.56 Bq/ gm (15 pCi/gm) for every 15 cm (6 inches) below the first 15 cm (6 inches). However, in other mill and ISL site areas proximate to locations where radium contamination exists (e.g., under the mill building, in a yellow cake storage area, under/around an ore pad, and at ISLs in soils where spray irrigation has occurred as a means of disposal), uranium or thorium would be the radionuclide of concern. Because 10 CFR part 40, Appendix A, does not codify cleanup criteria for soil contamination from radionuclides other than radium, it cannot be used as a standard for uranium and thorium cleanup, and existing NRC guidance documents are currently used to develop appropriate cleanup levels for these and other radionuclides. There is not a similar need to address codifying requirements for groundwater at UR facilities because 10 CFR 40, Appendix A, as adopted by NRC to conform to EPA regulations in 40 CFR 192, already specifies groundwater cleanup standards applicable to tailings impoundments and also specifies that standards at UR facilities for groundwater cleanup from sources other than the tailings impoundment can be determined on a site-specific basis.

Cleanup of radium to the concentration standards noted above would generally result in doses higher than the 0.25 mSv/yr (25 mrem/yr) unrestricted use dose criterion of the final cleanup rule. Calculations done by NRC's toll-free number, you will have full access to all NRC systems but you will not have access to the main FedWorld system

If you contact FedWorld using Telnet, you will see the NRC area and menus, including the Rules menu. Although you will be able to download documents and leave messages, you will not be able to write comments or upload files (comments). If you contact FedWorld using FTP, all files can be accessed and downloaded but uploads are not allowed; all you will see is a list of files without descriptions (normal Gopher look). An index file listing all files within a subdirectory, with descriptions, is included. There is a 15minute time limit for FTP access

Although FedWorld can be accessed through the World Wide Web, like FTP that mode only provides access for downloading files and does not display the NRC Rules menu.

You may also access the NRC's interactive rulemaking web site through the NRC home page (http:// www.nrc.gov). This site provides the same access as the FedWorld bulletin board, including the facility to upload comments as files (any format), if your web browser supports that function.

For more information on NRC bulletin boards call Mr. Arthur Davis, Systems

Integration and Development Branch. U.S. Nuclear Regulatory Commission. Washington, DC 20555, telephone (301) 415–5780; e-mail AXD3@nrc.gov. For information about the interactive rulemaking site, contact Ms Carol Gallagher, (301) 415–6215; e-mail CAG@nrc.gov.

Dated at Rockville, Maryland this 1st day of July, 1997.

For the Nuclear Regulatory Commission John C. Hoyle,

Secretary of the Commission.

[FR Doc 97-17753 Filed 7-18-97; 8.45 am] BILLING CODE 7590-01-P